

CLAIMS

What is claimed is:

- 1 1. A method of executing a sequence of instructions comprising:
 - 2 determining a predicted predicate value for a predicate;
 - 3 and
 - 4 conditionally executing a predicated instruction depending on the
 - 5 predicted predicate value.
- 1 2. The method of claim 1, further comprising:
 - 2 executing a COMPARE instruction to determine an actual predicate value
 - 3 for the predicate;
 - 4 comparing the actual predicate value to the predicted predicate value; and
 - 5 flushing a pipeline if the predicted predicate value and the actual
 - 6 predicate value are unequal.
- 1 3. The method of claim 2, further comprising executing the predicated
 - 2 instruction after flushing the pipeline.
- 1 4. The method of claim 2, wherein flushing the pipeline consists of flushing only
 - 2 a backend portion of the pipeline.

1 5. The method of claim 2, further comprising updating historical information
2 using the actual predicate value corresponding to the predicate in a predicate
3 table.

1 6. The method of claim 1, further comprising storing the predicted predicate
2 value in a file after determining the predicted predicate value and before
3 conditionally executing the predicated instruction.

1 7. The method of claim 1, wherein determining the predicted predicate value
2 includes calculating the predicted predicate value using historical information
3 corresponding to the predicate.

1 8. The method of claim 6, wherein determining the predicted predicate value
2 includes reading the historical information corresponding to the predicate in a
3 predicate table.

1 9. The method of claim 1, wherein conditionally executing the predicated
2 instruction includes executing the predicated instruction if the predicted
3 predicate value is true.

1 10. The method of claim 1, wherein conditionally executing the predicated
2 instruction includes treating the predicated instruction like a no-op if the
3 predicted predicate value is false.

- 1 11. A processor comprising:
2 a predicate table; and
3 a predicate prediction calculator having an input coupled to an output of
4 the predicate table.
- 1 12. The processor of claim 11, further comprising a speculative predicate register
2 file having an input coupled to an output of the calculator.
- 1 13. The processor of claim 12, further comprising a pipeline having a predicted
2 predicate value input coupled to an output of the file and an actual predicate
3 value output coupled to an input of the predicate table.
- 1 14. The processor of claim 13, further comprising an XOR gate having a first
2 input coupled to the actual predicate value output of the pipeline, a second
3 input coupled to an output of the file, and an output coupled to a flush input of
4 the pipeline.
- 1 15. A processor comprising:
2 a predicate table to store historical information corresponding to a
3 predicate; and
4 a pipeline coupled to the table, the pipeline to receive a predicted
5 predicate value calculated from the historical information, and to

6 conditionally execute a predicated instruction depending on the
7 predicted predicate value.

1 16. The processor of claim 15, further comprising a predicate prediction
2 calculator to calculate the predicted predicate value.

1 17. The processor of claim 15, further comprising a speculative predicate register
2 file to store the predicted predicate value.

1 18. The processor of claim 15, wherein the pipeline includes an actual predicate
2 value output coupled to the predicate table to provide an actual predicate
3 value to the predicate table.

1 19. The processor of claim 18, wherein the pipeline includes a flush input to
2 receive a flush signal if the predicted predicate value and the actual predicate
3 value are unequal.

1 20. The processor of claim 15, wherein the predicate table is to further store
2 historical information corresponding to a plurality of predicates.